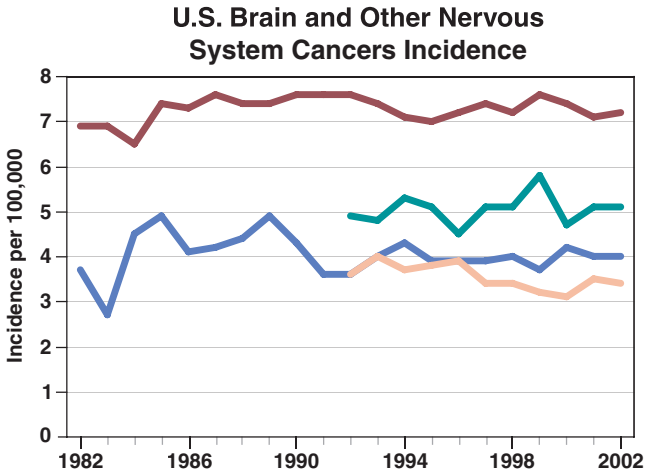
A Snapshot of Brain and Central Nervous System Cancers

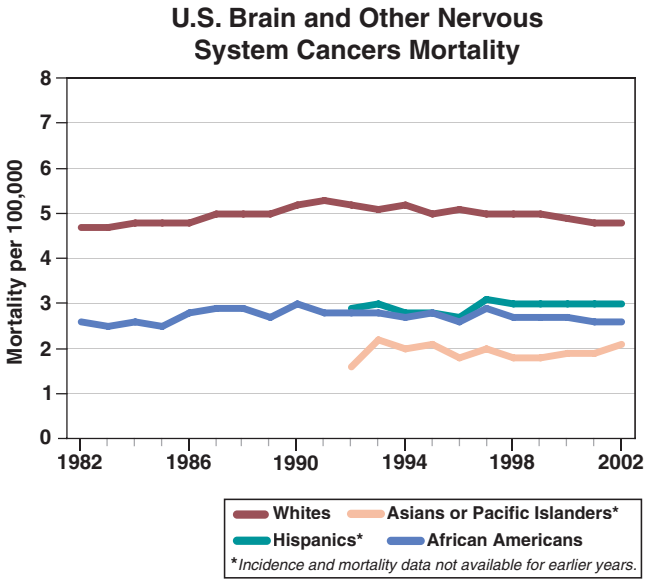
Incidence and Mortality Rate Trends

The incidence and mortality rates for cancers that originate in the brain and central nervous system (CNS) have remained relatively unchanged in the last decade. Both incidence and mortality rates are substantially higher for Whites than for other racial/ethnic groups. Regardless of racial/ethnic group, men have higher incidence and mortality rates than women.

Brain and other CNS cancers are the second leading cause of cancer-related death in children and make up 21 percent of all childhood cancers. In comparison to adults, the absolute number of brain and CNS cancer deaths in children is smaller and survival rates are higher.

Source for incidence and mortality data: Surveillance, Epidemiology, and End Results (SEER) Program and the National Center for Health Statistics. Additional statistics and charts available at: http://seer.cancer.gov/

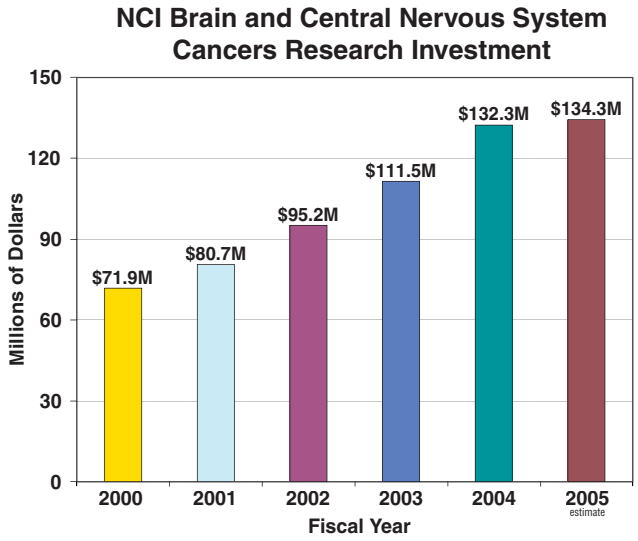




Trends in NCI Funding for Brain and Central Nervous System Cancers Research

The National Cancer Institute's (NCI's) investment in brain and CNS cancers research has increased from $71.9 million in fiscal year 2000 to an estimated $134.3 million in fiscal year 2005.

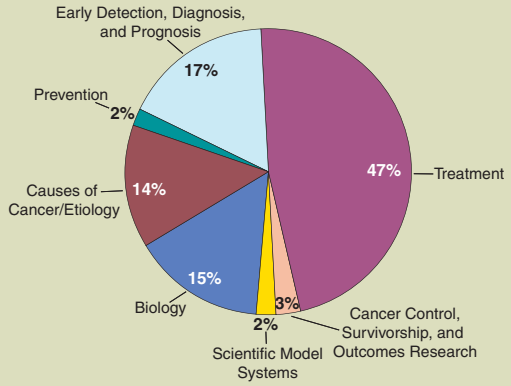
Source: NCI Financial Management Branch
http://www3.cancer.gov/admin/fmb



Examples of NCI Research Initiatives Relevant to Brain and Central Nervous System Cancers

- Four brain tumor-specific **Specialized Programs of Research Excellence (SPOREs)** are moving results from the laboratory to the clinical setting. http://spores.nci.nih.gov/current/brain/brain.html
- **REMBRANDT (REpository of Molecular BRAin Neoplasia DaTa)**, a partnership between NCI and the National Institute of Neurological Disorders and Stroke (NINDS), is creating a publicly available database of primary brain tumor data. REMBRANDT will house data from the NCI-sponsored **Glioma Molecular Diagnostic Initiative**, which is developing an extensive molecular profile of brain tumors to help researchers and clinicians identify and evaluate molecular targets in brain cancers. http://rembrandt.nci.nih.gov/
- The **Mouse Models of Human Cancers Consortium** is developing mouse models that mimic human nervous system cancers including those of neuronal and glial origins. http://emice.nci.nih.gov/emice/mouse_models/organ_models/cns_models
- The **Neuro-Oncology Branch (NOB)** engages the strengths and resources of NCI and the National Institute of Neurological Disorders and Stroke (NINDS) to develop novel experimental therapeutics for children and adults with tumors of the brain and spinal cord. http://home.ccr.cancer.gov/nob/default.asp

NCI Brain and Central Nervous System Cancers Research Portfolio



Percentage of Total Dollars by Scientific Area
Fiscal Year 2004

* Data on training grants are not included in this figure. A description of the relevant research projects can be found at the NCI Cancer Research Portfolio website at http://researchportfolio.cancer.gov.

- The **Pediatric Brain Tumor Consortium**, the **North American Brain Tumor Consortium**, and the **New Alternatives in Brain Tumor Therapy** consortium are dedicated to conducting innovative clinical evaluations of new therapies and technologies for patients with malignant brain tumors. http://www.pbtc.org, and http://www.nabtt.org
- The **Brain Tumor Home Page** provides up-to-date information on brain cancer treatment, prevention, genetics, causes, and other topics. http://www.cancer.gov/brain/

Selected Opportunities for Advancement of Brain and Central Nervous System Cancers Research

- Conduct epidemiological studies using expanded and linked patient databases to identify risk factors for the various types of brain and CNS cancers.
- Improve the assessment of treatment response and the identification, reporting, and treatment of long-term side effects to brain and CNS cancers.
- Characterize the genetic changes, molecular pathways, and cellular interactions involved in brain and CNS tumor initiation and progression. Use this information to establish a molecular- and imaging-based classification scheme for brain and CNS cancers.
- Facilitate the development of novel therapeutic agents and approaches for adult and pediatric brain tumors, including chemotherapeutic, immunologic, antiangiogenic, genetic, and viral agents.